

Astronesthes trifibulatus, a New Indo-Pacific Stomioid Fish
(Family Astronesthidae) Related to the Atlantic
A. similis

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Abstract *Astronesthes trifibulatus*, a new species found in the Indo-Pacific from off South Africa to Hawaii and Marquesas, is distinguished from its sister species *A. similis*, known only from the western Atlantic and adjacent seas, by the presence of a terminal filament on the barbel bulb and by having shorter side filaments that do not extend beyond the bulb.

More than ten years ago, we independently prepared descriptions of this new species of *Astronesthes*, which closely resembles the Atlantic species *A. similis*. The late Danish ichthyologist, V. Ege, earlier had recognized the new species among the DANA collections and had so indicated in his notes, which were given to Gibbs. The burgeoning expeditions and surveys of the 1960's and 1970's collected a fair number of specimens of this species, enough to indicate that it is not rare and to give a general idea of its geographic distribution. Herein we describe the new species and its distribution and compare it in some detail with *A. similis*.

Measurements and fin-ray counts were made according to Hubbs and Lagler (1958), with exceptions noted in Goodyear and Gibbs (1970). Designations of serial photophore groups are given by Morrow (1964), Goodyear and Gibbs (1970), and Okamura, Amaoka and Mitani (1982).

Astronesthes trifibulatus sp. nov.

(New Japanese name: Yari-tokagehadaka)

(Figs. 1, 2)

Astronesthes sp. (near *similis*). Clarke, 1974: 344 (Hawaii; vertical distribution).

Astronesthes sp. Parin et al., 1977: 84 (Western Pacific; description).

Astronesthes "similis". Clarke, 1982: 294, table 6 (Hawaii, feeding habits).

Diagnosis. A species of *Astronesthes* with a black-stemmed barbel bearing a long-ovoid distal bulb with three filaments, one less than half bulb length arising from each side near

middle part of bulb, the third arising from center of terminal end of bulb. Pectoral rays usually 6; dorsal rays usually 12; branchiostegal photophores usually 19–21.

Description of metamorphosed specimens. Head and body in well preserved specimens uniform dark brownish black, with metallic sheen on sides of head and body. Small photophores forming a line on most or all rays of pectoral, pelvic and caudal fins; otherwise all fin-rays and membranes unpigmented, except near their bases. Barbel stem pigmented until terminal bulb; bulb and side filaments unpigmented, terminal filament may be unpigmented, partly pigmented, uniformly pigmented, or with black spots.

Ventral row of photophores not angulated at base of pectoral fin; AC continuous, not broken into levels.

Pelvic-fin insertion slightly to moderately in advance of dorsal-fin origin; difference between predorsal length and prepelvic length 1.5–8.6% SL. Anal-fin origin well behind end of dorsal base. Anal base 1.1–2.0 times dorsal base. Dorsal and ventral adipose fins present.

Barbel slightly shorter to slightly longer than head length; its stem with unpigmented central core, lightly to heavily pigmented surface, and many scattered small photophores; unpigmented terminal bulb usually long-ovoid to ellipsoid in shape (but see Fig. 2D), bearing three filaments: one arising from each side near middle of bulb, one arising from terminal end of bulb. Side filaments about half bulb length; terminal filament shorter than to several times as long as

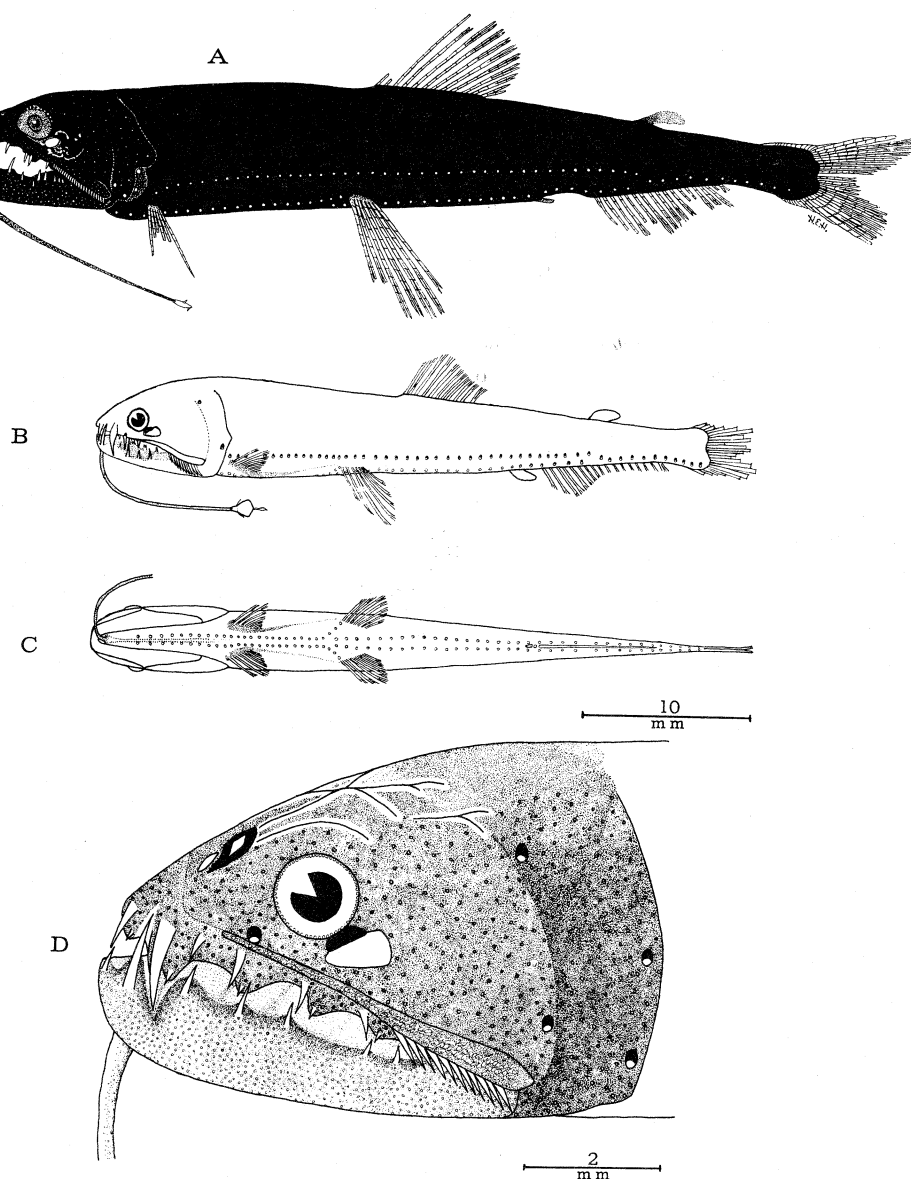


Fig. 1. *Astronesthes trifibulatus* paratypes. A, USNM 208469, 97.1 mm SL, lateral view (luminous patches on head mostly from other specimens to show maximum development). B, HUMZ 98392, 33.5 mm SL, lateral view. C, same, ventral view. D, same, head. A, drawn by H. E. Hammann; B-D, by C. Haruta.

bulb. Terminal filament variable: simple or forked; with or without a bulblet; with or without short basal branches (Fig. 2).

Postorbital organ large for *Astronesthes*, its length 50% to 100% of fleshy orbit diameter in specimens smaller than 100 mm SL, decreasing to 35% to 57% in those larger than 100 mm.

There is no indication that males have a larger postorbital organ than females.

Luminous patches present only on head, variable in development. Among those observed: a small round patch at anterior margin and midventral margin of postorbital organ; patches of variable size and shape posterior to

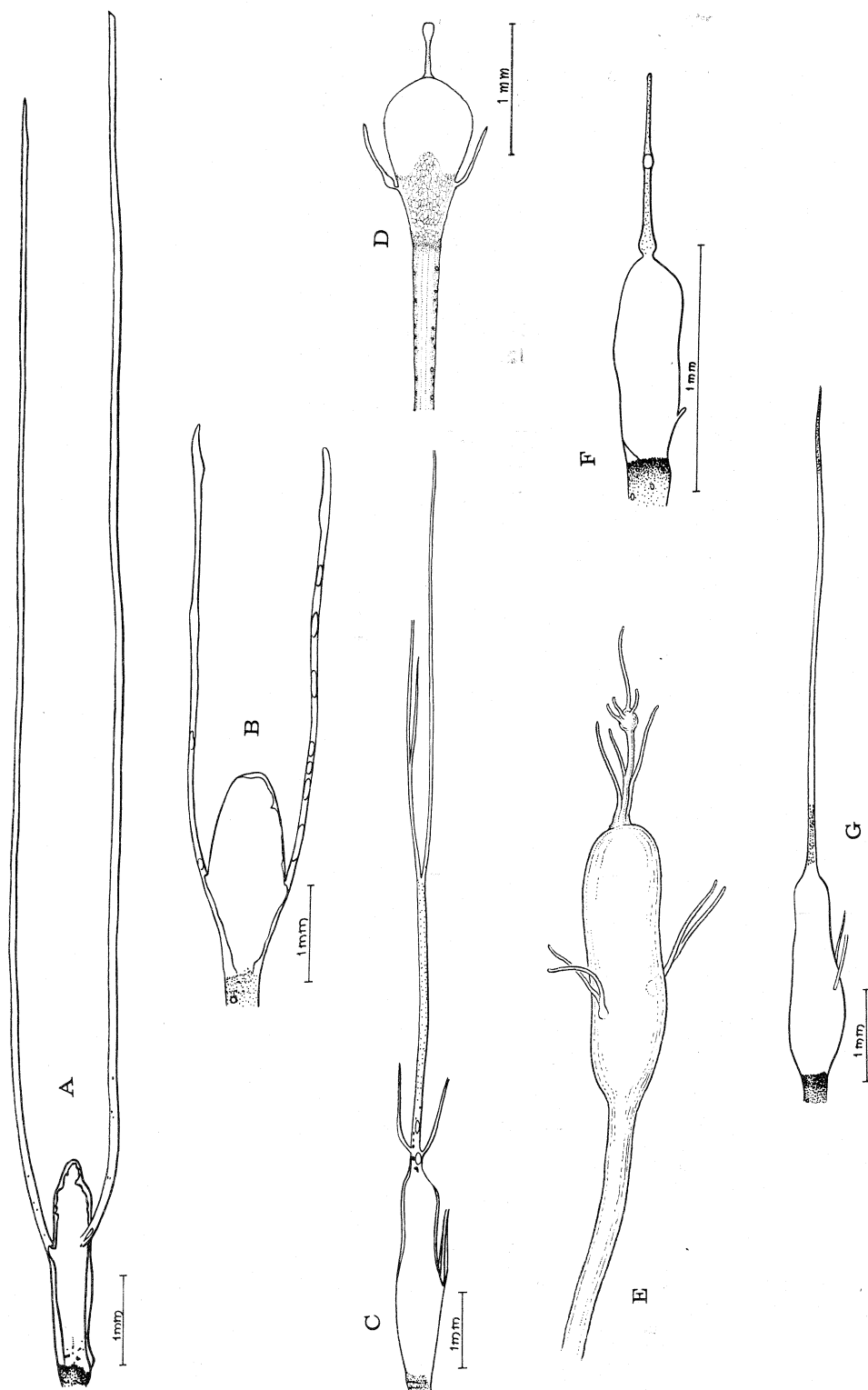


Fig. 2. Barbels of *Astronesthes trifibulatus* and *A. similis*. A-B, *A. similis*. A, USNM 257477, 136.4 mm SL. B, USNM 257473, 91.0 mm SL. C-G, *A. trifibulatus*. C, paratype, IOAN uncat., 108.7 mm SL. D, paratype, HUMZ 98392, 33.5 mm SL. E, paratype, ZMUC P208394, 62.5 mm SL. F, non-type, USNM 257446, 32.0 mm SL. G, holotype, USNM 257438, 129.8 mm SL. D, by C. Haruta; E, by Poul Winther; others by P. K. Hollingsworth.

postorbital organ and along dorsal edge of maxilla; a few round patches on cheeks; and curved lines beginning above and below postorbital organ and extending onto cheeks. Curved line below postorbital organ observed in speci-

mens as small as 28 mm SL.

Counts are given in Table 1, except the following. Premaxilla with 4-6 (usually 5) teeth in main row, 0-2 small lateral teeth. Maxillary comblike teeth increasing in number with size

Table 1. Counts of *Astronesthes trifibulatus* and *A. similis*. Asterisks showing counts of holotype of *A. trifibulatus*. Mean indicated as \bar{x}

	Dorsal rays							Anal rays								
	10	11	12	13	14	\bar{x}		16	17	18	19	20	21	22	\bar{x}	
<i>similis</i>		19	24	4		11.7		1	1	9	22	12		1	19.0	
<i>trifibulatus</i>	1	3	31*	2	1	12.0				2	11*	17	8		19.8	
	Pectoral rays			IP					PV							
	6	7		9	10	11	12	\bar{x}		15	16	17	18	19	\bar{x}	
<i>similis</i>	39			1	18	27	1	10.6		5	23	18	2		16.4	
<i>trifibulatus</i>	37*	1		1	8	26*	2	10.8		3	24*	10		1	16.3	
	VAV					OV										
	22	23	24	25	\bar{x}		15	16	17	18	\bar{x}					
<i>similis</i>	1	20	20	3	23.6		2	34	10	1	16.2					
<i>trifibulatus</i>		5	23*	9	24.1		1	19	17		16.4					
	VAL					AC										
	23	24	25	26	27	\bar{x}		10	11	12	\bar{x}					
<i>similis</i>	11	27	8			23.9		6	32	8	11.0					
<i>trifibulatus</i>		24	11*	2	1	24.5		1	26	12*	11.2					
	IA					IC										
	48	49	50	51	52	53	\bar{x}		59	60	61	62	63	64	\bar{x}	
<i>similis</i>	1	1	26	13	3	1	50.4		1	3	21	13	6		61.5	
<i>trifibulatus</i>		1	4	19*	12		51.2			1	4	14	10*	6	62.5	
	OA					OC										
	39	40	41	42	43	\bar{x}		50	51	52	53	54	55	\bar{x}		
<i>similis</i>	4	31	10			40.1		7	24	12	1			51.2		
<i>trifibulatus</i>		9	21*	4	1	40.9			9	11	12*		1	52.2		
	Palatine teeth					Gill teeth										
	3	4	5	6	7	\bar{x}		12	13	14	15	16	\bar{x}			
<i>similis</i>	2	28	9			4.2		1	7	20	6	1	14.0			
<i>trifibulatus</i>	3	19	4*	1	2	4.3			6	15*	7		14.0			
	Branchiostegal photophores															
	17	18	19	20	21	\bar{x}										
<i>similis</i>	1	1	4	25	13	20.1										
<i>trifibulatus</i>			1	13	16*	20.5										
	Vertebrae															
	Precaudal					Caudal					Total					
	36	37	38	39	\bar{x}		16	17	18	\bar{x}		53	54	55	56	\bar{x}
<i>similis</i>	2	35	25		37.4		15	42	5	16.8		6	37	18	1	54.2
<i>trifibulatus</i>	2	4	9*	1	37.6		2	6*	8	17.4			5	10*	7	55.1

from as few as 5 to as many as 24 (23.7–134.5 mm SL). Mandible with 7 teeth in main row, 0–2 small lateral teeth.

Morphometric data are given in Table 2. Measurements of the 129.8 mm female holotype (percent SL in parentheses) are as follows. Snout to: dorsal origin 64.5 (49.7), anal origin 98.7 (76.0), pelvic insertion 59.8 (46.0); head length 29.6 (22.8); barbel length to end of bulb 31.6 (24.3); terminal bulb length 2.6 (2.0); terminal-filament length 6.4 (4.9); snout to fleshy orbit 7.8 (6.0), fleshy-orbit length 5.7 (4.4); postorbital-organ length 2.5 (1.9); upper-jaw length 23.8 (18.3); depth behind head (=greatest depth) 19.5 (15.0); caudal-peduncle depth 6.8 (5.2); pectoral-fin length 21.6 (16.6); pelvic-fin length 24.9 (19.2); dorsal-fin base 16.5 (12.7); anal-fin base 20.8 (16.0); longest premaxillary tooth 6.0 (4.6); longest mandibular tooth 7.8 (6.0).

Etymology. The name *trifibulatus* is an adjective alluding to the three filaments charac-

teristically present on the barbel bulb.

Distribution (Fig. 3). *Astronesthes trifibulatus* has been taken in tropical and subtropical Indo-Pacific waters from south of South Africa in the southwestern Indian Ocean to off Hawaii and the Marquesas in the Central Pacific. No specimens have been taken east of 65°E in the Indian Ocean, but this may be an artifact of sampling.

Comparisons. The new species is very similar to *A. similis*, which is, however, known only from the Atlantic Ocean. Both species normally have 6 pectoral rays, modally 12 dorsal rays, and a long-ovoid to ellipsoid barbel bulb with a pair of filaments arising from the sides. The combination of these characters is unique among *Astronesthes*, and few other species share any of them.

The terminal filament from the bulb is the only character of *A. trifibulatus* that differentiates it convincingly from *A. similis*. The side filaments of *A. trifibulatus* are short, not extending beyond the distal end of bulb; those of *A. similis*,

Table 2. Ranges of proportional measurements in per cent of standard length for *Astronesthes trifibulatus* and *A. similis*. Number of specimens measured is given in parentheses, with *A. trifibulatus* first. (D), proportion decreases with increasing SL. (D50), proportion becomes smaller with increasing SL until ca. 50 mm SL, after which no change is apparent. (I), proportion becomes larger with increasing SL. (D-I), proportion first decreases, then increases with increasing SL. (I-D), proportion first increases, then decreases with increasing SL. If no symbol follows the range, there is no apparent change in proportion with growth.

	<i>trifibulatus</i>	<i>similis</i>
Standard length	20.7–134.5	20.3–148.2
Predorsal length (28, 47)	46.1–61.8 (D-I)	45.9–55.0 (D-I)
Preanal length (28, 40)	70.6–83.1 (D-I)	70.4–78.1 (D-I)
Prepelvic length (28, 47)	40.1–52.1	43.0–50.3
Head length (32, 58)	17.5–27.0	21.5–26.6
Barbel length (26, 58)	11.5–32.1	12.3–32.7 (I-D)
Bulb length (26, 54) (without filament)	1.2–4.9 (D)	0.9–6.1 (D)
Snout–fleshy orbit (26, 29)	2.5–6.0 (I)	4.3–6.6 (I)
Fleshy-orbit length (32, 54)	3.2–5.7	3.5–6.0
Postorbital-organ length (31, 49)	0.8–4.1 (D)	1.5–3.9 (D)
Upper-jaw length (24, 44)	17.4–21.1 (D50)	16.8–22.2 (D50)
Depth behind head (23, 32)	10.5–17.8	11.7–17.9
Greatest depth (27, 36)	10.5–17.8	11.7–18.7
Caudal-peduncle depth (23, 34)	4.7–7.8	4.7–6.8
Pectoral length (12, 17)	9.2–17.5	15.2–18.7
Pelvic length (19, 28)	9.7–20.3	16.7–23.2
Dorsal-base length (24, 37)	10.2–13.9	10.7–15.0
Anal-base length (24, 37)	15.4–19.2	14.5–19.3
Second premaxillary tooth (13, 32)	3.3–5.4	4.0–6.4
Second mandibular tooth (12, 31)	2.2–6.1	3.6–7.4

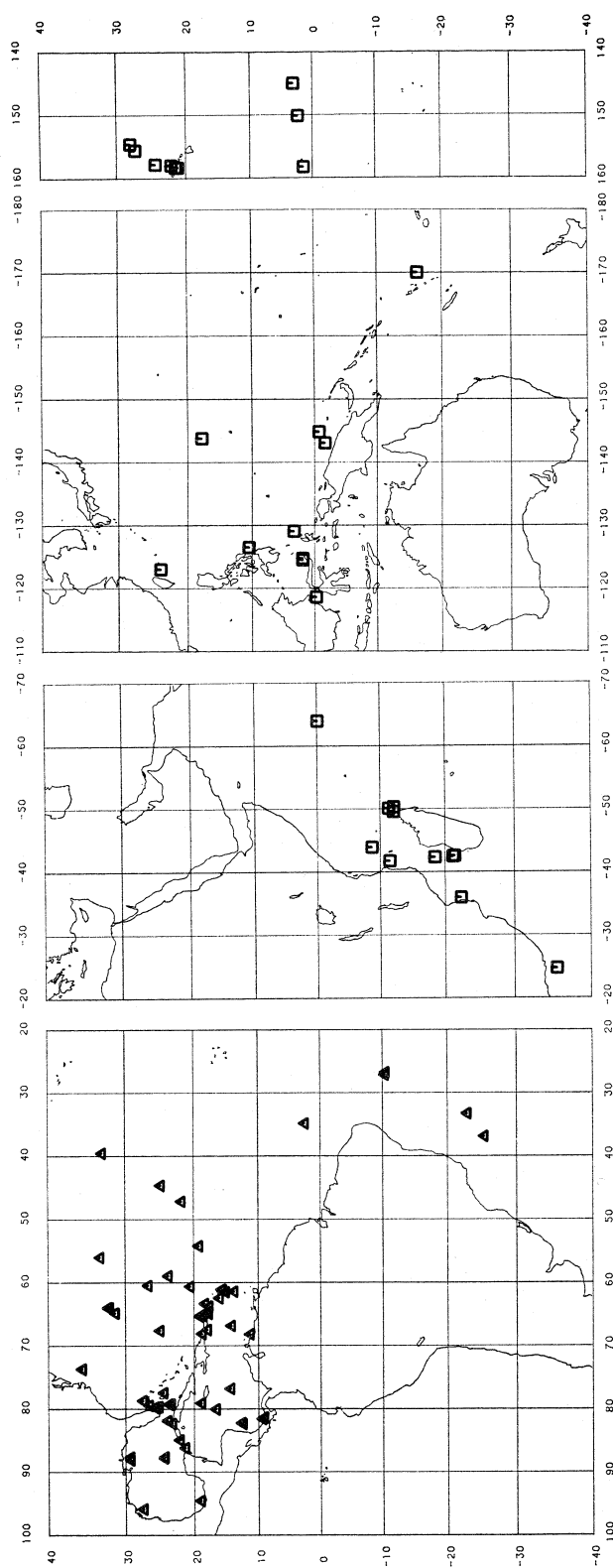


Fig. 3. Geographic distribution of *A. trifibulatus* (squares) and *A. similis* (triangles), from specimens examined and Parin et al., 1977.

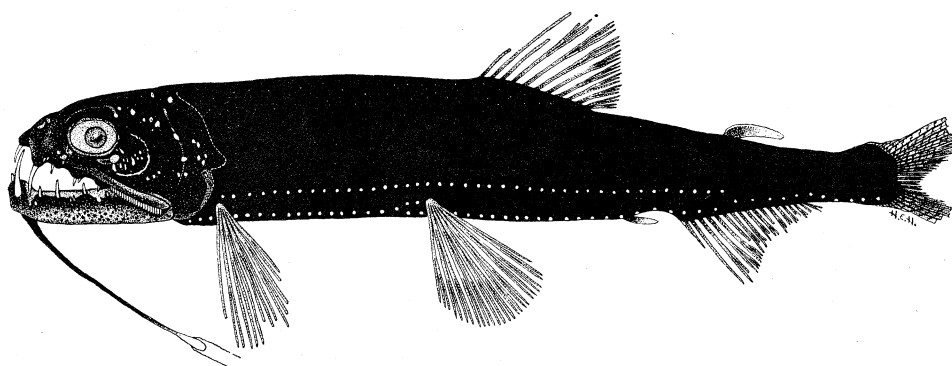


Fig. 4. *Astronesthes similis*, USNM 187904, 117.4 mm SL. Drawn by H. E. Hammann.

when intact, are longer and extend well beyond the bulb (Fig. 2), but they are often broken. There are slight mean or modal differences in some counts, with *A. trifibulatus* tending to have slightly higher numbers of serial photophores, branchiostegal photophores, and vertebrae (Table 1), but overlap is virtually complete. Large specimens of *A. trifibulatus* appear to retain relatively longer barbels than *A. similis*. The 6 largest *trifibulatus*, 97–135 mm SL, have barbels 23.7% to 28.8% SL; of 25 *similis* 95–148 mm, only 5 have barbels 23.9% to 27.1% SL, all others being 14.3% to 23.6% SL. Barbels of *A. similis* are decreasing relative to SL at these larger sizes, while those of *A. trifibulatus* apparently do not change proportion with growth, so that only 2 of the 6 large *trifibulatus* encroach upon the cloud of points of similar-sized *similis*.

Several other species of *Astronesthes* have barbel bulbs of somewhat similar shape, but of these only small *A. luetkeni* may have lateral filaments, and that species is easily distinguished by several counts (19–20 VAV, 19–21 VAL, 52–53 IC, and 33–34 OA photophores; 48–50 vertebrae; usually 7 or 8 IP photophores; usually 8 pectoral rays).

Only the species of the *chrysophekadion* group (including *martensii* and *lucifer*) share with *trifibulatus* and *similis* the presence of 6 pectoral rays, and their dorsal-fin count is even less (modally 11 vs. 12). These species, however, have pale, silvery sides; some have a large black patch on the ventral caudal peduncle; 2 or 3 of their middle AC photophores are raised; and their barbels have very small bulbs without

filaments.

Astronesthes similis Parr, 1927

(Figs. 2, 4)

Astronesthes similis Parr, 1927: 32–34, figs. 22, 23 (orig. descr.).

Astronesthes similis: Regan and Trewavas, 1929: 15–16, fig. 4 (descr.; N. Atlantic and Caribbean); Bertin, 1940: 382 (specs. in MNHN); Marshall, 1960: 6, 25–26 (swimbladder); Gibbs, 1964: 331–332, fig. 79E (descr.; distrib.); Weitzman, 1967: 2–18, figs. 19–24 (osteology); Backus et al., 1971: 30 (distr.); Rass, 1971: 511 (listed for Gulf of Mexico, Caribbean); Bekker et al., 1975: 303 (Caribbean); Belyanina, 1975: 139 (young from Caribbean).

Diagnosis. A species of *Astronesthes* with a black-stemmed barbel bearing a long-ovoid distal bulb with two filaments longer than bulb, one arising on each side between base and middle; no terminal filament; pectoral rays usually 6; dorsal rays usually 11 or 12; branchiostegal photophores usually 20–21.

The description of *A. trifibulatus* fits metamorphosed *A. similis* in almost every respect except those mentioned under the previous section on comparisons.

Distribution (Fig. 3). *Astronesthes similis* is known only from the western Atlantic west of 35°W, where it has been taken between 35°N and 27°S. The vast majority of specimens have been taken in the Gulf of Mexico and Caribbean Sea, and breeding populations may not occur outside these areas; most specimens taken in the open Atlantic outside the Bahamas and Antilles have been smaller than 100 mm SL.

Material examined. *Astronesthes trifibulatus*: Holotype: USNM 257438, female, 129.8 mm SL, 21°20'N, 158°20'W, 8 Dec. 1970, 2311–0120 hrs. local time, 0–170 m. Paratypes: USNM 208469, 97.1, 22°25'S, 35°54'E, 1 Oct. 1964, 0–740 m. USNM 257439, 47.1, 22°N, 158°W, 12 Nov. 1969, 1648–1935, 0–50 m. USNM 257440, 108.0, 03°04'N, 145°00'W, 10 Feb. 1970, 0445–, 0–670 m. ZMUC P208387, 42.0, 00°07'S, 63°56'E, 8 Dec. 1929, 1910–, 300 mw. ZMUC P208394, 62.5, 12°09'S, 49°34'E, 19 Dec. 1929, 2020–, 300 mw. ZMUC P208390, 36.0, 11°24'S, 50°05'E, 20 Dec. 1929, 1900–, 400 mw. BPBM 28868, (2) 36.5–61.5, 21°20'N, 158°20'W, 5 Oct. 1971, 1953–2142, 0–190 m. HUMZ 98392, 33.5, 24°00'N 123°00'E, 13 July 1966, 1920–2130. HUMZ 98393–94, (2) 42.8–57.8, 21°20'N, 158°20'W, 28 Feb. 1971, 1940–2140, 0–50 m. IOAN uncat., 108.7, 17°48'N, 143°47'E, 30 Apr. 1975, 2115–2215, 0–200 m. MNHN uncat., 24.6, 16°22'S, 170°00'E, 28 Nov. 1965, 0–300 m. SAM 24519, 134.5, 35°42'S, 24°40'E, 17 Nov. 1962, 2030–0015, 0–500 m. SIO 71–302, 25.2, 27°28.4'N, 155°35.4'W. SIO 73–41, ca. 28 mm, 22°10'N, 158°00'W, 23 Aug. 1972, 0158–0315. SIO 73–149, 31.7, 28°09.1'N, 154°35.8'W. Non-types: USNM 208470, 35.0, 09°57'S, 64°55'E, 2 June 1964, 1755–2250, 0–580 m. USNM 256929, 22.3, 02°19'N, 150°11'W, 10 Dec. 1977, 2115–2307, 0–325 m. The following all from ca. 21°20'N, 158°20'W: USNM 257444, (3) 48.7–75.0, 28 Feb. 1971, 2240–0040, 0–100 m. USNM 257445, 40.8, 28 Oct. 1969, 2020–2340, 0–100 m. USNM 257446, 32.0, 12 Nov. 1969, 1648–1935, 0–50 m. USNM 257447, 40.1, 12 Nov. 1969, 1953–2310, 0–120 m. USNM 257448, 25.8, 6 July 1970, 2343–0150, 0–60 m. USNM 257449, 25.2, 8 July 1970, 2101–2316, 0–100 m. USNM 257450, 20.4, 8 July 1970, 2335–0208, 0–300 m. USNM 257451, (4) 21.5–27.6, 9 July 1970, 1820–2028, 0–200 m. USNM 257452, 23.4, 9 July 1970, 2102–2322, 0–200 m. USNM 257453, 21.4, 15 Sep. 1970, 0727–1130, 0–525 m. USNM 257454, 36.2, 15 Sep. 1970, 2006–2230, 0–115 m. USNM 257455, 28.2, 21 Sep. 1970, 0718–1102, 0–500 m. USNM 257456, 28.5, 23 Sep. 1970, 2242–0047, 0–70 m. USNM 257457, 30.0, 9 Dec. 1970, 0135–0412, 0–430 m. USNM 257458, 65.8, 14 Dec. 1970, 0724–1022, 0–640 m. USNM 257459, 39.7, 2 Mar. 1971, 0046–0254, 0–120 m. USNM 257460, 28.7, 10 June 1971, 1034–1310, 0–590 m. USNM 257461, (4) 21.2–27.9, 16 June 1971, 0804–1100, 0–570 m. USNM 257462, 23.9, 17 June 1971, 0303–0515, 0–85 m. USNM 257463, 20.5, 18 Sep. 1971, 0131–0308, 0–100 m. NMFS–H (lost), 24.8, 01°26'N, 158°19'W, 9 June 1954, 1840–, 0–85 m. NMFS–H (lost), 110.9, 21°32'N, 158°22'W, 11 Oct. 1958, 0–170 m. ZMUC P208382, 24.5, 01°52'N, 124°28'E, 2 July 1929, 2120–, 50 mw. ZMUC

P208385, 24.2, 01°54'N, 124°42'E, 3 Aug. 1929, 0330–, 600 mw. ZMUC P208386, (2) 26.1–?, 00°17'S, 118°35'E, 15 Aug. 1929, 0320–, 200 mw. ZMUC P208383, 24.5, 12°11'S, 50°18'E, 18 Dec. 1929, 1900–, 500 mw. ZMUC P208392, 21.8, same, 2155–, 300 mw. ZMUC P208393, 26.2, 12°09'S, 49°34'E, 19 Dec. 1929, 2020, 500 mw. ZMUC P208388–89, (2) 23.7–25.5, 11°24'S, 50°05'E, 20 Dec. 1929, 1900–, 600 mw. ZMUC P208395, 25.0, same, 500 mw. ZMUC P208396–97, (2) 25–36, same, 1900–, 400 mw. ZMUC P208391, 45.4, same, 200 mw. ZMUC P208398, 34.0, 08°44'S, 43°54'E, 23 Dec. 1929, 1930–, 400 mw. ZMUC P208399, 27.2, 11°33'S, 41°44'E, 6 Jan. 1930, 1915–, 300 mw. ZMUC P208400, 26.0, 18°30'S, 42°18'E, 9 Jan. 1930, 2100–, 500 mw. ZMUC P208401, 23.0, same, 300 mw. ZMUC P208402, 28.5, 21°13'S, 42°26'E, 10 Jan. 1930, 2115–, 300 mw. ZMUC P208403–04, (2) 24–27, 21°30'S, 42°32'E, 11 Jan. 1930, 1330–, 200 mw. Postlarvae: USNM 257441, 23.7, 24°31'N, 157°50'W, 24 May 1968, 2225–0035, 0–353 m. USNM 257442, 23.5, 21°20'N, 158°20'W, 10 June 1971, 0052–0600, 0–1275 m. USNM 257443, 23.3, same, 19 Sep. 1971, 0350–0800, 0–1600 m. ZMUC P208384, 22.7, 03°18'N, 129°02'E, 8 July 1929, 2145–, 600 mw. SIO 69–23, 19.5, 12°52.0'S, 64°02.4'E.

Astronesthes similis: Holotype, BOC 2098, 57.1 mm, 24°29'N, 77°29'W, 14 March 1927, 8000ft. wire. Non-types: USNM 108259, 65.0, 18°34'N, 65°15'W. USNM 108260, 59.3, 18°32'N, 65°04'W. USNM 186231, 107.3, 27°28'N, 78°44'W. USNM 187904, 117.4, 23°40'N, 79°18'W. USNM 199499, (10) 60.0–142.5, 09°00'N 81°23'W. USNM 234251, 36.5, 31°58'N, 64°01'W. USNM 234252, 84.6, 32°14'N, 64°02'W, 22 Aug. 1971, 1819–2007, 0–100 m. USNM 234253, 86.1, 31°14'N, 64°52'W, 10 June 1970, 0710–1010, 630–700 m. USNM 234254, 106.9, 32°09'N, 64°07'W, 24 Aug. 1971, 0440–0555, 0–150 m. USNM 257466, 50.1, 18°43'N, 68°08'W. USNM 257467, 73.8, 29°14'N, 87°40'W. USNM 257468, ca. 95, 16°35'N, 80°04'W. USNM 257469, 101.0, 09°16'N, 81°37'W. USNM 257470, 93.1, 29°11'N, 88°07'W. USNM 257471, (2) 89.0–91.9, 11°14'N, 68°12'W. USNM 257472, 99.5, 12°24'N, 82°24'W. USNM 257473, 91.0, 27°25'N, 95°54'W. USNM 257474, (21) 95.7–140.1, 15°42'N, 61°08'W. USNM 257475, (2) 96.7, 103.0, 15°36'N, 61°09'W. USNM 257476, (23) 75.1–138.8, 15°34'N, 61°10'W. USNM 257477, (5) 115.0–129.2, 17°38'N, 63°48'W. USNM 257478, (2) 95.0–121.2, 18°18'N, 63°23'W. USNM 257479, 118.2, 18°18'N, 63°24'W. USNM 257480, 101.1, 18°56'N, 94°36'W. USNM 257481, 121.7, 24°24'N, 87°49'W. USNM 257482, (4) 117.3–148.2, 24°19'N, 87°40'W. USNM 257567, (12) 71.1–127.6, 12°35'N, 82°16'W. BMNH 1929.1.4.77, 30.0, 19°01'N,

65°23'W, 3 Jan. 1922, 0050-, 300 mw. BMNH 1929.1.4.82, 69.5, 35°42'N, 73°43'W, 21 May 1922, 2130-, 300 mw. BMNH 1929.1.4.83, 105.9, 16°03'N, 62°29'W, 3 Apr. 1922, 2000-, 600 mw. IOAN uncat., 22.2, 10°26'S, 27°10'W. IOAN uncat., 28.9, 10°33'S, 26°47'W. IOAN uncat., 28.0, 10°33'S, 26°49'W. IOAN uncat., (6) 92.6-108.5, 20°30'N, 60°40'W, surface. IOAN uncat., 117.5, 14°12'N, 66°52'W. ISH 782/66, (2) 46.8-50.4, 23°02'S, 33°19'W. ISH 797/66, (2) 49.0-63.0, 25°27'S, 36°56'W. ISH 648/74, 75.8, 02°27'N, 34°52'W. ISH 133/79, 104, 26°42'N, 60°30'W. ISH 3262/79, 79, 23°46'N, 58°59'W. ISH 925/79, 94, 25°02'N, 67°38'W. ISH 2178/79, 80, 33°02'N, 39°33'W. MCZ 35590, 106.9, 23°23'N, 79°17'W. MCZ (lost), 49.2, 18°47'N, 65°10'W, 22 Feb. 1954, 2000-0045, 0-46 m. MCZ 41134, 39.6, 26°35'N, 79°28'W, 7 Feb. 1954, 2339-0150, 0-470 m. NMW 59088, Cuba, 121.8 (wrongly labeled as *A. Richardsonii*, Poey type). UMML 11829, 21.3, 25°43'N, 79°58'W. UMML 11841, 20.6, 25°34.5'N, 79°46'W. UMML 11844, 19.5, 25°31.5'N, 79°50.2'W. UMML 11970, 24.6, 25°46'N, 79°47'W. UMML 12014, 27.9, 25°10'N, 79°41'W. UMML 14898, 23.2, 25°35'N, 79°45'W. UMML 24394, 120.9, 21°17'N, 86°13'W. UMML uncat., 30.5, larval fish coll. ZMUC P202626, 20.3, 21°47'N, 47°11'W, 3 Dec. 1913, 0020-, 25 mw. ZMUC P208405, 21.1, 14°21'N, 76°50'W, 26 Jan. 1922, 0200-, 50 mw. ZMUC P202637, 87.0, 22°06'N, 84°58'W, 1 Feb. 1922, 2245-, 500 mw. ZMUC P202632, 36.5, 23°13'N, 82°21'W, 4 Feb. 1922, 0330-, 100 mw. ZMUC uncat., 43.0, 17°54'N, 67°30'W, 26 Feb. 1922, 0330-, 100 mw. ZMUC P202638, 58.5, 17°43'N, 64°56'W, 23 Mar. 1922, 2330-, 300 mw. ZMUC P202634, (2) 19.9-20.1, 35°42'N, 73°43'W, 21 May 1922, 2130-, 100 mw. ZMUC P202635, 24°52'N, 44°40'W, 10 Aug. 1928, 2145-, 300 mw. ZMUC P202636, same, 100 mw.

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Literature cited

- Backus, R. H., J. E. Craddock, R. L. Haedrich and D. L. Shores. 1971. The distribution of mesopelagic fishes in the equatorial and western North Atlantic. In Farquhar, G. B., ed., *Proceedings of an international symposium on biological sound scattering in the ocean*. Maury Center for Ocean Sci., Dept. Navy, Rep., 005: 20-40.
- Bekker, V. E., Yu. N. Shcherbachev, and V. M. Tchuvassov. 1975. Deep-sea pelagic fishes of the Caribbean Sea, Gulf of Mexico, and the region of the Puerto-Rico Trench. *Trudy Inst. Okeanolog.*, 100: 289-336. (In Russian, English summary).
- Belyanina, T. N. 1975. Preliminary results of the study of ichthyoplankton of the Caribbean Sea and the Gulf of Mexico. *Trudy Inst. Okeanolog.*, 100: 127-146. (In Russian with English summary).
- Bertin, L. 1940. Revision des Stomiatiiformes (Téléostéens Isospondyles) du Museum. *Bull. Mus. Natn. Hist. Nat.*, (2) 11(4): 378-382.
- Clarke, T. A. 1974. Some aspects of the ecology of stomiatoid fishes in the Pacific Ocean near Hawaii. *Fish. Bull.*, 72 (2): 337-351.
- Clarke, T. A. 1982. Feeding habits of stomiatoid fishes from Hawaiian waters. *Fish. Bull.*, 80 (2): 287-304.
- Gibbs, R. H., Jr. 1964. Family Astronesthidae. In *Fishes of the western North Atlantic*. Sears Found. Mar. Res. Mem., 1 (4): 311-350.
- Goodyear, R. H. and R. H. Gibbs, Jr. 1970 (1969). *Ergebnisse der Forschungsreisen des FFS „Walther Herwig“ nach Südamerika X. System-*

- atics and zoogeography of stomiatoid fishes of the *Astronesthes cyaneus* species group (family Astronesthidae), with descriptions of three new species. Arch. Fischereiwiss., 20 (2/3): 107-131.
- Hubbs, C. L. and K. F. Lagler. 1958. Fishes of the Great Lakes region. Cranbrook Inst. Sci. Bull., 26: i-xi+1-213.
- Marshall, N. B. 1960. Swimbladder structure of deep-sea fishes in relation to their systematics and biology. Discovery Rep., 31: 1-121.
- Morrow, J. E., Jr. 1964. Family Chauliodontidae. In Fishes of the western North Atlantic. Sears Found. Mar. Res. Mem., 1 (4): 274-289.
- Okamura, O., K. Amaoka and F. Mitani, eds. 1982. Fishes of the Kyushu-Palau Ridge and Tosa Bay. Japan Fish. Resource Cons. Assoc., Tokyo, 435 pp.
- Parin, N. V., V. E. Bekker, O. D. Borodulina, E. S. Karmovskaya, B. I. Fedoryako, J. N. Scherbachev, G. N. Pokhilskaia and V. M. Tchuvasov. 1977. Midwater fishes in the western tropical Pacific Ocean and the seas of the Indo-Australian Archipelago. Trudy Inst. Okeanolog., 107: 68-188. (In Russian with short English summary).
- Parr, A. E. 1927. The stomiatoid fishes of the suborder Gymnophotodermi (Astronesthidae, Melanostomiidae, Idiacanthidae) with a complete review of the species. Bull. Bingham Oceanogr. Coll., 3 (2): 1-123.
- Rass, T. S. 1971. Deep-sea fish in the Caribbean Sea and the Gulf of Mexico (the American mediterranean region). In Symp. Investig. Resources Carib. Sea Adj. Reg., UNESCO, Paris, pp. 509-526.
- Regan, C. T. and E. Trewavas. 1929. The fishes of the families Astronesthidae and Chauliodontidae. Dana Exped. 1920-22, Rep. 5: 1-143.
- Weitzman, S. H. 1967. The osteology and relationships of the Astronesthidae, a family of oceanic fishes. Dana-Rep., 71: 1-54.
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- インド・太平洋産トカゲハダカ科の1新種ヤリトカゲハダカ *Astronesthes trifibulatus* と大西洋産の近縁種 *A. similis*
- Robert H. Gibbs, Jr.・尼岡邦夫・春田親邦
- 南アフリカ沖からハワイ諸島やマルケサス諸島に至るインド・太平洋からトカゲハダカ科の1新種ヤリトカゲハダカ(新称)が採集された。本種は6本の胸鰭条と多くは12本の背鰭条をもつこと、触鬚先端の肥大部に1対の糸状物をもつことなどで大西洋とその近接海域から知られている *A. similis* に近縁である。しかしこの新種は触鬚の先端の肥大部の末端に1本の糸状物があることおよび側面にある1対の糸状物は触鬚の肥大部長より短いことで後種と区別される。
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